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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/804,345	03/12/2001	James B. Henrie	35451/107	1137

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EXAMINER	
LEWIS, MICHAEL A	
ART UNIT	PAPER NUMBER
2655	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/804,345	Applicant(s) HENRIE ET AL.	
	Examiner Michael A Lewis	Art Unit 2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 - 20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3 & 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Cole (U.S. Patent 5890115).

Regarding claims 1, 3 & 4, Cole et al. disclose an apparatus, a gaming device *[portable computing device]* that has a sound generator that is configured to improve sound quality, comprising:

a. A processing device (Fig 1(104)).

b. A memory coupled to the processing device (Fig 1(106)).

c. A sound generator coupled to the processing device (Fig 6).

d. A program residing in memory and configured to be run on the processing device, the program configured to vary the output amplitude of the sound generator depending on the frequency output of the sound generator (Col 3, Lines 40 – 50).

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 15 - 20 are rejected under 35 U.S.C. 103(a) as unpatentable over Cole (U.S. Patent 5890115) in view of Yeap (US4118601) and further in view of Okada (U.S. Patent 5095798).

Regarding claims 15 & 20, Cole discloses a method of improving sound quality for a sound generator, comprising:

a. Providing a signal indicative of a sound frequency to be generated (Col 13, Line 41).

b. Accessing a look up table *[memory]* with or calculating volume adjustment information according to the sound frequency to be generated (Col 13, Line 20; Col 15, Line 48; Col 16, Line 20).

c. Obtain volume adjustment information. The master volume is controlled by a register array that holds offset volume adjustment information (Col 16, Line 60).

d. Providing the current volume setting (Col 16, Line 19).

Cole does not explicitly teach adjusting the volume based on the volume adjustment information. However, Yeap teaches the use of filters and attenuators (Fig 2), where the output amplitude varies with the frequency. The ability to vary frequency with amplitude gives the electronic ability to equalize the sound system for better quality sound.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify Cole to vary the amplitude with respect to frequency as taught by Yeap that gives the electronic ability to equalize the sound system for better quality sound.

The modified Cole do not teach explicitly teach the use of lookup tables. However, Okada et al. describes a program consisting of routines (Col 20, Line 50) that control

several tables including the duration table which is responsible for initializing, setting and storing information related to the register which is responsible for setting the duration of the sound. Okada et al. further describes the use of the duration settings and an Envelope Counter (102) that can then be used to control the amplitude level of the sound output signal based on frequency (Col 19, Line 17). Varying the amplitude with respect to frequency gives the electronic ability to equalize the sound system for better quality sound

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the modified Cole to vary the amplitude with respect to frequency as taught by Okada that gives the electronic ability to equalize the sound system for better quality sound.

Regarding claims 16, 17 & 18, the modified Cole discloses the use of scaling by subtracting the volume adjustment information based on the current volume setting to obtain a scaled volume adjustment and setting the volume to the desired volume setting. Cole describes taking the current envelope volume and adding it to a current low frequency oscillator volume and subtracting a current offset volume in order to produce a scaled volume adjustment that is implemented to produce the desired volume setting (Cole: Col 16, Lines 16 – 30).

Regarding claim 19, the modified Cole discloses a method of generating a sound at the sound frequency to be generated. Cole describes a synthesizer frequency control register that controls the pitch [frequency] of the output signal (Cole: Col 17, Lines 10 – 15).

4. Claims 2 & 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cole (U.S. Patent 5890115) in view of Klein (U.S. Patent 6011473).

Base claim 1 is anticipated by Cole as noted above.

Regarding claim 2, Cole et al. do not disclose the use of a sound generator as a buzzer. However, Klein discloses the use of a sound generator as a buzzer (Col 4, Line 20). The use of buzzers in sound generators may be beneficial users who will like to be alerted about the status of a device.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify Cole to use buzzers as taught by Klein to alert a user on the status of a device.

Regarding claim 7, Cole et al. do not disclose the incorporation of a sound generator into a mobile electronic device. However, Klein et al. teach use of a sound generator incorporated within a portable or mobile device *[computer]* (Abstract). The use of sound generators incorporated within a mobile computer is beneficial to alert users about the

status or unauthorized removal of their mobile device.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify Cole by incorporating a sound generator within a mobile device as taught by Klein to alert a user on the status of a mobile device.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cole (U.S. Patent 5890115) in view of Campbell. (U.S. Patent 6532005).

Cole as noted above anticipates the base claim 1. Cole et al. do not disclose the incorporation of a sound generator into a mobile electronic device. However, Campbell teaches the use of a PDA with a sound generator incorporated for use in an audio positioning device (Col 3, Line 34). PDA's equipped with sound generators are necessary for applications related to providing status alerts to users.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify Cole by incorporating a sound generator within a PDA device as taught by Campbell to provide sound within PDA devices.

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cole (U.S. Patent 5890115) in view of Cohen (U.S. Patent 4283600).

Cole as noted above anticipates the base claim 1. Cole et al. do not disclose the use of a filter as a means to flatten the frequency response of a sound generator. However, Cohen teaches the use of de-emphasis and emphasis filters to produce a flattened frequency response of the output signal of a sound generator (Col 7, Line 48). A flattened frequency response of sound is crucial for the delivery of good sound quality.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify Cole et al. by the use of a filter to flatten the frequency response as taught by Cohen since it would have been necessary to deliver good sound quality.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cole (U.S. Patent 5890115) in view of Pfeiffer (U.S. Patent 4618985).

See the rejection of claim 1 for the features in common to claims 1 and 8 as being disclosed by Cole.

Cole et al. do not disclose the following limitations:

a. A modulator circuit coupled to the processor

b. A transistor coupled the modulator circuit

c. A sound generator coupled to the transistor

However, Pfeiffer teaches items a, b & c (Col 16, Line 55; Fig 9 (540) & Fig. 10 (608,602)). Pfeiffer describes the voice synthesizer circuit [claimed sound generator] (Fig 9) and its relationship to the modulator (540) with built-in transistor (542). Fig 10 shows the relationship of the voice synthesizer [claimed sound generator] (608) and the microprocessor (602). Modulators with built-in transistors are necessary to generate good quality sound.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify Cole et al. by incorporating a modulator with a transistor coupled to the sound generator as taught by Pfeiffer to generate a better sound quality.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cole (U.S. Patent 5890115) in view of Pfeiffer (U.S. Patent 4618985) as applied to claim 8 above and in further view of Groff (U.S. Patent 4446334).

Regarding claim 9 (assuming dependency on claim 8), the combination of Cole and Pfeiffer disclose the use of a processor with memory, a sound generator, a modulator and transistor. However, the combination of Cole and Pfeiffer do not disclose the use of a Darlington transistor. However, Groff teaches the use of a Darlington transistor (Col 8, Line 52). Darlington transistors are necessary to produce a better quality sound.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the combination of Cole and Pfeiffer with the use of a Darlington transistor as taught by Groff in order to provide a better quality sound.

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cole (U.S. Patent 5890115) in view of Pfeiffer (U.S. Patent 4618985) as applied to claim 8 above and in further view of Campbell. (U.S. Patent 6532005).

Regarding claim 10, the combination of Cole and Pfeiffer disclose the use of a processor with memory, a sound generator, a modulator and a transistor. However, the the combination of Cole and Pfeiffer do not disclose the use of a sound generator with the above features incorporated into a PDA. However, Campbell teaches a sound generator incorporated into a PDA (Col 3, Line 34). PDA's equipped with sound generators are necessary for applications within its memory related to sound.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the combination of Cole and Pfeiffer by incorporating a sound generator device as taught by Campbell to provide good sound quality audio within a PDA devices.

10. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cole (U.S. Patent 5890115) in view of Pfeiffer (U.S. Patent 4618985) as applied to claim 8 above and in further view of Klein (U.S. Patent 6011473).

Regarding claim 11, the combination of Cole and Pfeiffer disclose the use of a processor with memory, a sound generator and a modulator. The combination of Cole and Pfeiffer do not disclose the incorporation of a sound generator into a mobile electronic device. However, Klein et al. teach use of a sound generator incorporated within a portable or mobile device (Col 4, Line 23). The use of sound generators incorporated within a computer may be beneficial to alert users about the status or unauthorized removal of their mobile device.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the combination of Cole and Pfeiffer by incorporating a sound generator within a mobile device as taught by Klein to alert a user on the status of a mobile device.

11. Claims 12,13 & 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cole (U.S. Patent 5890115) in view of Pfeiffer (U.S. Patent 4618985) as applied to claim 8 above and further in view of data (attached to references) which show widespread use of Bujeon and Citizen sound generator circuit within the industry over twenty years.

Regarding claim 12,13 &14, the combination of Cole and Pfeiffer disclose the use of a processor with memory, a sound generator and a modulator. The combination of Cole and Pfeiffer do not teach the use of Bujeon or Citizen sound generators. However, based on Bujeon (www.bujeon.com/history) and Citizen www.c-e,co.jp/company) company data, the sound generators for both companies have been widely used throughout the industry as buzzers for over twenty years before the claimed invention. The use of sound generators as buzzers incorporated within a computer may be beneficial to alert users in case of theft or other status information.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the combination of Cole and Pfeiffer by the use of Bujeon and Citizen sound generators as buzzers since they were widely accepted within the industry for providing alerts or status information.

Response to Arguments

14. Applicant's arguments with respect to claims 1 - 20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A Lewis whose telephone number is 703 305-8730. The examiner can normally be reached on Regular.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached on (703) 305-4827. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lewis A Michael
Examiner
Art Unit 2655

Mal

7/6/2004

W. R. YOUNG
PRIMARY EXAMINER